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ADDRESS

DELIVERED BEFORE THE

NORFOLK AGRICULTURAL SOCIETY,

ON THE OCCASION OF ITS

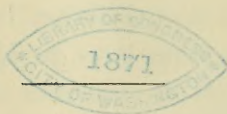
FIRST ANNUAL EXHIBITION,

AT DEDHAM, SEPT. 26, 1849.

BY

HON. MARSHALL P. WILDER,

PRESIDENT OF THE SOCIETY.



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At a meeting of the Trustees of the Norfolk Agricultural Society, held at Dedham on the 18th ultimo, the following resolution was unanimously adopted :

Resolved, That the thanks of the Society be presented to President Wilder for his able and valuable address delivered on the occasion of the first annual exhibition of the Society, and that the Secretary be requested to cause two thousand copies to be printed. One copy each to be delivered to the members of the Society, five hundred copies to be reserved for the use of the Society, and the balance to be placed in the hands of the Secretaries to be disposed of as may be deemed expedient.

EDWARD L. KEYES, *Secretary*.

Dedham, Nov. 5th, 1849.

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ADDRESS.

Gentlemen of the Society, Friends and Fellow Citizens :

ON the return of the Olympia in ancient Greece, her conflicting tribes proclaimed an armistice; her scholars left the shades of Academus; her painters dropped their pencil; her sculptors their chisel; her shepherds their crook; her agriculturists their mattock; and *all* uniting in the celebration, beheld with wonder and delight the skill and success of competitors for prizes. So, except as we are actuated by higher and *nobler* motives, we have suspended our divers pursuits, the cares, toils and conflicts of business, and have come up here to-day, from city and country, to celebrate the first anniversary of our Association.

We meet to interchange salutations, to promote industry, invention, and improvement, not in agriculture alone, but in all the useful and ornamental arts of which she is the common mother; to instruct, aid, and encourage each other, and to reward superior merit and skill.

The present is not a mere gala day, when the refined and fashionable of all professions assemble for the gratification of curiosity, or vain amusement; but a day when working men assemble to work; to exhibit the results of their labor; to explain the processes of their manufacture or growth; to teach and to be taught how the greatest amount and the best quality of the various productions of the soil and the arts can be realized from the least labor and expense, and in the shortest space

of time. Such is the drama we have assembled to perform. Each has his part in it. You have assigned me the prelude, a part which is attended with considerable difficulty, especially to one not much accustomed to elaborate composition: yet I comfort myself with the assurance that its defects, and even itself, are generally forgotten in the interest which the play and the after-piece awaken.

I ask your indulgence while I speak to you of AGRICULTURE; the parent of all arts, the primary source of individual and national wealth, independence, and power.

OF ITS HISTORY, I shall speak but briefly. Its origin was ascribed by the ancients to fabulous heroes and heroines; by the Egyptians to Osiris; by the Greeks to Ceres and Triptolemus; by the Latins to Janus; and by the Chinese to Chin-hong, successor to Fo-hi; but the earliest correct account is from that *book* of books, which divine wisdom exempts from all mistakes. From this we learn that the cultivation of the soil was the primitive pursuit of man. God placed Adam in Eden, "to till the ground," "to dress and to keep the garden"; but a garden, in the proper acceptation of the term, is only a field which labor has highly cultivated, and taste embellished.

I will not delay on the questions, more curious than useful, whether every vegetable form sprang from its own seed; whether some of them originated from a principle of vegetable life infused into the soil itself, when God said, "Let the earth bring forth grass;" whether weeds, thistles, briars, and thorns existed before the fall; or whether the ground would have yielded more bountifully, and with less labor, if man had not incurred the displeasure of the Almighty. Let men of science and leisure examine and solve these problems. Be it our employment rather to practise this art, to turn it to the highest and best account for

the support of mankind, and the amelioration of their condition.

Of the descendants of our first parents, Cain was a "tiller of the ground;" Noah was an husbandman, who perpetuated the art among his posterity, as they came down from Mount Ararat upon the plains of Assyria, and divided the earth among them. Abraham and Lot had their respective herdsmen and pastures; Job had oxen, asses, sheep, and camels, and servants to keep them; and Jacob sent down into Egypt to purchase corn of his unknown Joseph. Elijah found Elisha ploughing in the field with twelve yoke of oxen. Of king David's principal workmen, one had the charge of the field, the tilling of the ground; another, of the vineyard; and Solomon, his son and successor, planted orchards and vineyards, and classed these pursuits "among the delights of the sons of men." We also read in the Scriptures of the various operations of watering, ploughing, reaping, threshing, winnowing with the shovel, and with the fan or sieve; of digging hills with a mattock, and of various agricultural productions, as corn, oil, fruits, milk, honey, and butter.

On the settlement of Canaan, each tribe received its inheritance, and each head of a family his portion by lot, and this he held by absolute right; and if this primitive system had been perpetuated, would it not have prevented that inequality in landed possessions, from which have resulted neglect of cultivation, consequent scarcity and starvation, which have given a sad distinction to the recent history of some parts of Europe?

Passing from these scenes of sacred association, would time permit we might trace the history of this noble art among the nations of antiquity. From Egypt, first in arts and first in letters, it passed through Phœnicia to Greece, where it employed the gifted mind of a Democritus, a Xenophon, an Aristotle, a Theophrastus,

and a Hesiod. From Greece, it was wafted on the wave of emigration to the banks of the Tiber, to Rome, mistress of the world, who planted it after her conquests, in all her colonies. Her consuls could wield the sword in war, and hold the plough in peace. Her Cincinnatus returned in honor from the battle field to his farm. Her Cato, himself a farmer, the son of a farmer, retired daily from his legal pursuits of the morning to his fields, "where, with a plain cloak over his shoulders in winter, and almost naked in summer, he labored with his servants, till they had concluded their tasks, after which he sat down with them at table, eating the same bread and drinking the same wine." The Georgics of her Virgil are a compend of the most approved methods of cultivation among the Greeks and Romans, and are worthy of the high rank which they hold in the educational systems of our day.

Upon the fall of the Roman empire, agriculture slumbered during the night of the dark ages, till the star of the reformation dawned upon the world. Then the seed which the ancient Romans carried into Britain, and that also which they scattered on their way thither in other countries, sprang up and bore fruit. But it was not until near the middle of the sixteenth century that the first English treatise on husbandry appeared, a little more than half a century before our Puritan fathers brought it with them to America.

From the commencement of the nineteenth century, we can speak of Agriculture as a science, and within the last thirty years, it has received the attention of learned and scientific men. The geological and agricultural surveys which have been made in many of our states, have furnished materials for a work on the application of science to this art, whenever some master-spirit shall arise to give them form and order, and to deduce from them such practical results as shall reduce the opera-

tions of the farmer to rules as definite and useful as any that govern the mechanic arts.

But, before the yeomanry of New England will avail themselves of such results, they must acquire just ideas of THE DIGNITY AND IMPORTANCE OF AGRICULTURE.

It is second to no other pursuit in origin, in resource, in productiveness and salutary influence. The man who discovers a process whereby a bog, a sandy plain, or a gravelly hill may be made a fruitful field or garden, is as truly a benefactor of his race, as a Columbus, a Newton, a Franklin, or a Fulton. He who shall discover an easy method for the extirpation of the curculio, and other insects injurious to vegetation ; or an effectual remedy for the disease which has some years proved more fatal to the potato, than the cholera to mankind, will send his name down to posterity honorably associated with that of Hippocrates, Galen, and Harvey.

The importance of this art we can never accurately appreciate, until we can estimate the results of commerce and the other great industrial pursuits which depend upon it ; until we can calculate the benefits which have resulted to our country and the world from the cultivation of cotton and of indian corn ; the forests it has cleared and made to bud and blossom like the rose ; the thousands it has raised from penury to affluence, and the millions it has fed and clothed.

That nation is wise, which requires in all her subjects a sufficient knowledge of this art, to enable them to derive their subsistence from the soil ; for she thereby provides not only for their support, but for their health, independence, and happiness. No father should consider his son *well* educated, till he knows how to gain his support from the soil ; and no mother, her daughter, however accomplished in all other respects, until she knows how to make *good* bread. And as our shrewd

young men are beginning to understand that something is requisite beside a little Music and French to make a good wife, so let our daughters learn that kid-gloved and silk-vested dandies, who can measure stay, tape, and bobbin, and act well their part at a levee, do not always make better husbands than our young farmers, with their hard hands, but noble hearts.

Without derogating from the importance and dignity of any other pursuit, we would have the attention of all classes in the community turned far more than it now is to Agriculture. If our wives and daughters were to spend a few hours every day among the fruits and flowers of our gardens, such exercise in the open air would reduce their liability to curvature of the spine and pulmonary disease, and would give them a firmer constitution, better health, and longer life. Similar blessings would be realized by our sons, if, in their preparation for mercantile and professional pursuits, they were to pass a year or two in the practice of this art.

Thus educated, our bankrupt merchants, our ministers, lawyers, and physicians, whom professional care and labor have prostrated, would never be without the means of an honorable support, and the recovery of health and competency. Bronchitis, and other diseases of sedentary men have been cured by farming; and if the experiment were tried oftener, instead of a voyage to Europe, we have no doubt but its success would render it a popular panacea.

But this, like every other vocation, requires education, theoretical and practical knowledge; and although the acquisitions in early life were but small, subsequent observations would increase the amount, so as to furnish the means of comfortable subsistence.

We have long thought that no volume except the spelling-book and the Bible, could be more important

in our common schools than an elementary treatise on Agriculture. We rejoice in the publication of several such works, eminently adapted to our youth, and worthy to be introduced into all our seminaries of learning; and we hope this important measure will attract the early attention of our zealous laborers in the vast field of general education.

Men may overlook or underrate the knowledge of this art to be derived from books, but let our scientific farmers illustrate its advantage; and prejudice, if it exist, will vanish and pass away like the morning cloud and early dew. Let them but vie with the mechanic and manufacturer, who, when a discovery is made by which labor and time are saved, turn it to their own advantage, not for the purpose of obtaining exorbitant prices, but to increase production at so low a rate as to encourage consumption, and thereby secure a safe and ready market.

Let our farmers, I say, imitate their example, and the wheels of enterprise in agriculture will soon be heard running on a parallel track with the car of improvement in any other art or science. The farmer should be a pioneer in reform, the first to avail himself of inventions; but in some parts of the world he is still turning up mother earth with a wooden spade. We need not however go to foreign lands for illustration. Within our own recollection a farmer purchased an iron plough, and after sufficient use of it to learn its superiority and advantages, urged his neighbors to imitate his example, but they declined; nor could they be persuaded till by the loan of his own plough, he at the same time turned over their soil and their prejudice, and introduced the improvement among them.

Such prejudices, we rejoice to say, have at length yielded to the march of improvement in the use of better implements, and of labor-saving machines for

planting, sowing, raking, threshing, ploughing, with the double plough, as we have seen to-day, and in other parts of our country with the steam plough, turning up fifty acres per day.

The watchword of the age is, "*Onward*"; and he who cultivates the soil, if he would prosper, must move simultaneously with his brethren of other trades and professions, for *his* interest is *their* interest, and he as well as the manufacturer and the mechanic may still have to compete with the pauper labor of Europe. "The Plough, the Loom, and the Anvil" * must work together and aid each other in this noble competition, and then if our government will not protect them, their own enterprise *will*, and success is sure.

Let *other* countries, more limited in their geographical extent and physical resources, and oppressed by the aristocracy of blood and wealth, countries to which nature has denied the essential elements of independence, so bountifully bestowed on the United States, shape their national policy as they may; be it our wisdom to develop our natural resources, by a conservative legislation, without regard to party politics, and to encourage by measures liberal and discreet, no privileged art or profession, but *all* the great industrial pursuits of our happy land.

Let us look well to the *foundation* of the temple of liberty; to the arts which are *primary*; to the education and useful employment of the *whole*.

Directing our course by this chart, one of the first objects which claim our attention, is, THE APPLICATION OF SCIENCE TO AGRICULTURE.

The practical skill already evinced by some of our

* Allusion is here made to "The Plough, The Loom, and The Anvil," a most valuable monthly, edited by that veteran in the Cause of Agriculture, John S. Skinner, Esq., Philadelphia.

farmers is worthy of all commendation ; yet the art can never be raised to its proper standard of dignity, without the aid of scientific men ; nor until the public mind shall be convinced that it is a study of far higher order, than it has hitherto been esteemed, and at least equal in usefulness to any that has engaged the attention of mankind. Prejudice and extreme caution have prevailed against new theories and "*book-farming*," and it is not to be denied that mistakes have been made by chemists and other writers ; but one cause of this has been, a deduction of general principles, without an investigation of facts, sufficient in number and variety.

There are certain natural laws which one fact may develope and settle as well as a thousand ; but there are others, quite numerous and important in agriculture, which scientific analysis or long and careful observation alone, can enable us to discover and usefully to apply. To the first, belong the constitution of the atmosphere and of water, the two elements which are essential conditions of vegetable life, and which chemistry teaches us are nearly the same in all latitudes and places on the globe ; but to the second, belong the constitution of the different kinds of soil and manure, and of various vegetable productions, and the adaptation of the two former to the growth of the latter.

To unfold these processes of the vegetable kingdom, to show by what agents they are conducted, by what laws regulated, and how the whole may be turned to the greatest account to the farmer, with the least labor and expense, are problems, for the solution of which agriculture must depend on the natural sciences. The high province of this art, Cowper affirms, with as much philosophy as poetry, is

"To study culture, and with artful toil,
To meliorate and tame the stubborn soil,
To give dissimilar, yet fruitful lands,
The grain, the herb, the plant — that each demands."

The farmer has too often shut his eyes to the light of these sciences, but they are as intimately connected with his calling as with any other pursuit. Without their aid, where would have been most of the inventions of the last quarter of a century, that now astonish and revolutionize the world!

We do not say that he should be an adept in these, we only insist that his knowledge of them, should be somewhat commensurate with their natural and necessary connection with his vocation; that he should know there is some philosophy in his business, and that his art does not consist altogether in ploughing, sowing and reaping.

Farmers, you yourselves desire your children to learn to read, and for this purpose provide them with books, schools and instructors, and as a primary condition of success you expect them to learn the alphabet. Apply this principle to your own pursuits. What is the alphabet of agriculture? Is it made up of pictures of a hoe, a spade, a plough, a scythe, or a rake? Its proper nomenclature consists of such terms as germination, nutrition, disintegration, composition, decomposition, and similar terms, of which most have some idea, but which very few can accurately define.

Ask your neighbor why he changes his crops? Why he turns his fields to fallow? Why they do not yield as bountifully as at first? He replies, "they need rest," "they have run out." A very sage remark! But how few can give the satisfactory answer; namely, that the fertilizing elements of the soil have been exhausted by continual cropping. Ask many of our most intelligent cultivators on what mainly depends their success. They answer, "on a judicious rotation of crops." Another very wise reply! But how few can explain the *why* and the *wherefore* of it. Of *this*, the many know no more than they do of the philosophy of

an eclipse or the occultation of the satellites of Jupiter.

Is it wonderful then that Farmer Higgins did think that ammonia and magnesia were the daughters of Victoria; that the phosphates and nitrates were tribes of Indians; and that gypsum was the Queen of Gypsies! Why should he be expected to know better? He never perhaps read a treatise or heard a lecture on Agriculture, and as to Chemistry and some of the other sciences, they were born since he was educated. If these facts call for censure, let *him* not be blamed; the true error lies with the public, with those that laugh at his ignorance, and who are too often in the condition of the mechanic, who appended to the directions on a guide-board for crossing a ferry, the following *very particular* notice: "N. B. Them as can't read, had better go round by the bridge."

Let none suppose we undervalue experience, which as a guide is commonly more safe and useful than progressive. Science is experience systematized and trained for progress, and we do not transcend the appropriate province of agriculture, when we insist that the farmer should understand something of the use of the crucible as well as of the plough.

By the application of chemistry to agriculture, the crops in some parts of Europe have been more than doubled. Of this, therefore, as well as of geology, botany and mechanics, he should not be altogether ignorant; and if he will add to his literary acquisitions some knowledge of meteorology, it will abate his veneration for weatherwise maxims, and embolden him to sow his grain in the old, as well as the new of the moon, and to kill his beef and pork without regard to the tide.

We live and move in a world of wonders. Every blade of grass, every leaf that flutters in the breeze, and every germ is an organized and living body. Every

plant and vegetable is as capable as the human system of imbibing and digesting its appropriate food, and although it becomes me to speak with modesty on a subject in which I myself am but a learner, yet allow me to say that the application of science to this art, has already settled many of the laws, that regulate the growth of trees and plants, with a certainty approximating that which attends the calculations of the astronomer.

For instance, by an analysis of wheat, we ascertain its ingredients and the food it requires for growth and productiveness. We know that it needs phosphate of lime, and that it is useless to attempt its cultivation where the soil is wholly deficient in this element. Hence we are as competent to feed a crop of wheat, as a flock of sheep, or a brood of chickens, but without this knowledge, which science alone can furnish, we might apply a kind of manure which would be injurious and perhaps destructive. But suppose, however, such food be not administered, that the ground is prepared, and the grain sown; it may flourish for a season, because it may find its proper nutriment in the soil, but let it be sown year after year, and it will prove less and less productive, and ultimately fail.

It has been the practice in countries producing wine, to bury the prunings of the vine at its root; and chemical analysis has lately discovered, that it contains a large proportion of potash, which is essential to its growth and productiveness. Again, it has long been known, that a tree planted in a soil, in which one of the same species has previously grown, will flourish but poorly. Why is this? If a chemist analyzes both the tree and the soil, the former will be found to contain, and to require for its growth and fruitfulness, elements of which the latter is deficient. Hence we learn with what kind of material that soil should be fertilized.

We have seen instances also, in which barnyard manure had been so abundantly applied as to retard or prevent vegetation, and where sand, gravel, virgin loam or clay was worth more to that soil than these manures ; and we have seen other instances in which mineral manures, as lime, had been so profusely applied as to lose all efficacy. Why was it? Chemical analysis affords the reply, and discovers to us that the soil was surcharged with these elements, and makes known the materials, and the proportion requisite to revive productive energy.

It is too late, in the progress of improvement, to denounce or anathematize these sciences. Though yet in their infancy, they have achieved wonders, and are destined to still greater results. There are departments of knowledge, important to the agriculturist, which they have hardly entered — such, for the most part, as their application to the cure of the various diseases to which the vegetable kingdom is subject. We need here a *materia medica*, and science must provide it; *books* which shall treat more fully of the diseases of plants, and which shall prescribe appropriate remedies, yea, which shall guard and preserve our vines from the bugs, our plums from the curculio, and our potatoes from infection. We have physicians for our horses and cattle, why not for our potatoes and wheat? Are not diseases in both the result of unnatural action, of agents which may be counteracted, of poisons which have their proper antidotes? Is there a disease, for which nature provides no remedy?

If by the application of science to agriculture, we can fathom the depths of nature, and bring up to the light, for the admiration and the benefit of mankind, her previously hidden treasures, shall we hesitate to do it? Or, if others, fired with greater zeal, and endowed with more ample means, venture into the labyrinths of science, explore the springs of nature, learn how her

curious machinery acts, and then returning, unfold and explain her various processes, and teach how to practise art more successfully, shall we refuse to avail ourselves of the benefits of their labor?

What vast quantities of vegetable and mineral manures now lie buried in the earth, which might, by the application of these sciences, be appropriated to the fertilization of the soil!

The importance of MANURES to the success of the farmer, entitles them to a distinct notice.

By a natural law every tree, plant, and herb, from the cedar of Lebanon, to the flag on the Nile; from the loftiest oak of the forest, to the humblest daisy of the meadow; from the fantastic parasite luxuriating in solstitial air, to the little flower that peeps from Alpine snows; *everything* endowed with vegetable life, requires its *own* peculiar aliment to sustain its vigor, and promote its growth. However varied this sustenance may be, and whether derived from earth, air or water, if it be withheld, or mixed with uncongenial elements, deterioration and decay are inevitable.

Gradation and change for the better or worse are continually taking place. Soon the rich livery which now clothes the fields will be exchanged for the decomposing matter, which in other forms and transitions, shall give stimulus and health to a new generation.

“ Another race, the following spring supplies,
They fall successive, and successive rise.”

Even the flinty rock becomes disintegrated, furnishing the slender grass and grain with their silicious coats of mail; the rough granite too yields up its store of inorganic food, and these commingling with the fertilizing treasures that lie buried in the earth, are, with nice adaptation gradually prepared, in the laboratory of nature,

for the development and support of the more than eighty thousand species of plants that spring from her bosom.

Here, as with animal life, one principle runs through the whole, calling for the restoration of that strength and fertility which were reduced by vegetation and production. Inexhaustible fertility is a chimera of the imagination. Sooner or later the prairie and the richest alluvial soil, will require a return of the nutritive materials which have been abstracted by vegetation. However fertile our fields at first, the inevitable consequence of the annual removal of the crops is a reduction of the elements upon which growth and fruitfulness depend, and without a restoration of these, sterility will ensue. We have seen fields so completely exhausted that their renovation became a work of years. But for the annual inundations of the Nile, its banks would long ago have been as barren as the deserts of Arabia, and in some old countries, instances are not rare, where territory which once supported a large and thriving population, has become barren and desolate.

Nature yields kindly to the full extent of her ability, but there is a point beyond which she refuses to give the increase. This is as true now, as it was in the days of Moses, when the land every seventh year was to enjoy a season of rest; and it has ever been a maxim of experience. More than two thousand years ago, the Romans practised on this principle, and were well acquainted with nearly all the fertilizers now in use. Xenophon and Varro speak of ploughing in crops to enrich the soil; Theophrastus, Virgil, and others, of various manures, particularly ashes, an article too much neglected in our day; Pliny, of the preservation of manure in pits; Columella, of covering them for a similar purpose, and of the impropriety of carrying more into the field than could be ploughed in at once; and Cato, of the advantage of making a large quantity, and of

keeping it carefully. Remember *that*, gentlemen; *keep it carefully*.

It is principally upon manures, that the farmer of New England must depend for the productiveness of his soil. Hence the best method of manufacturing, preserving, and applying this article, the adaptation of its varieties to different soils and crops are of the utmost importance; and to encourage attention to these our Society has offered liberal premiums.

Our farmers cannot generally afford to purchase manures, nor is this necessary except where the soil is deficient in some mineral or other quality, essential to the production of certain kinds of crops. But with due attention to the accumulation and preservation of all that can be acquired from the fields, herds, and other sources, even where there are no beds of peat, and no mineral manures, sufficient may be acquired to keep the soil in a productive state. It is the farmer's business to *make* manures, and not to *purchase* them.

Of the different kinds, of their manufacture, adaptation, and application, it would be gratifying to speak did space permit. Suffice it however to say, that there are two methods of practice on all these points; one is by the slow process of personal experience, the other is by chemical analysis which leads at once to the desired result.

Suppose that in either way the farmer adds twenty-five per cent. to the fertility, and consequently to the products of his farm, (an amount less than that which may be realized by many cultivators;) and suppose also that a corresponding result were secured throughout the country, how much have you advanced the agriculture of the land?

Look, for instance, at the crop of hay in the United States, which last year was worth, at eight dollars per ton, *one hundred and twenty-seven millions of dollars*, or of

the product of Indian corn, which (for A. D. 1848) at fifty cents per bushel would amount to nearly *three hundred millions of dollars*. This year, by this hypothesis, these would be increased, the former *thirty millions*, and the latter *seventy-five millions* of dollars. But if we accumulate all the products of the ground, we do not ascertain the full benefit of this increase of fertility and productiveness; because the expense of cultivation is not increased in the same proportion as the production; labor is saved, and therefore high cultivation is the best economy. Multiplying the productions of the country is better than extending its boundary and increasing its territory; because it adds to its wealth and power, without enlarging its frontier, and of course the expense of its defence.

We talk of our tariff and revenue, which have occupied our ablest statesmen, excited the public mind, and convulsed the nation; and we have thought these subjects worthy of the treasure, the talent, and the time devoted to them; but if the fertility of our soil were increased, and of course the productions, only two per cent., the addition would more than equal the whole revenue of the nation.

If any one inquire, Where is this fertility to be found? Our reply is, THERE, *where it is now thrown away*. A careful observation will convince any cultivator that a larger quantity of manure is annually wasted in this Commonwealth than is turned to any valuable account.

Farmer Tuttle thinks a drain quite as essential to his barnyard as to his cellar; and Mr. Goodman his neighbor annually clears his yard, stables, and vaults, during the Indian summer, and lays their contents in small heaps upon his green sward and tillage, where by evaporation and leaching it loses most of its virtue; and there it remains till spring, because his father did so before him, and left him the assurance, which accords well

with his own experience, that it then spreads more easily, and mingles more readily with the soil. And how often do we meet in our travels, instances where the manures of the stable and barnyard have lain for months exposed to the sun, wind and storm; where the soluble ingredients have been either leached into a pond, there to waste their very quintessence on the desert air, or to trickle down the gutters of the roadside, to fertilize catnip, tansy and wormwood.

These cases are not so frequent as formerly, and we cannot too highly commend the excellent and praiseworthy example of some of our farmers, in the erection of substantial structures, not only suited to the convenience and comfort of stock, but particularly adapted to the preservation and increase of manures. The protection of *these* by shelter or some kind of covering from the vicissitudes of the weather, is as important as the proper storage of our hay and grain.

The waste from this cause alone is enormous. By an analysis recently made at the English Agricultural College, it appeared that manures exposed in the yard in the ordinary way, lost more than half of their fertilizing properties when compared with those which had been sheltered.

Another waste which cannot be too highly reprobated results from *the excessive heating* of manures and the escape of their gases. The effluvia which arises from our stables and compost beds, when under fermentation, is the very life and stimulus of vegetation; and the amazing loss thus occasioned, may be readily appreciated by the odor which sometimes pervades a whole neighborhood. How often do we see these gases rising like a column of smoke, burning up the most essential and active elements, and leaving only the cage, the bird having escaped. Here one general direction must suffice, which is, mix with the manures while in fermenta-

tion proper absorbents, such as charcoal, clay, or gypsum, for the retention of these elements; and when in a warm and active state, let them be mingled or covered as soon as possible with the soil they are to fertilize.

No branch of agriculture is more important than the manufacture, preservation and application of manures; neither is there any in which reform is more necessary.

Intimately connected with these, are the ARTS OF CULTIVATION, as ploughing, subsoiling, trenching, and draining, which are receiving the attention of this Society.

On the first of these, we cannot refrain from an expression of our opinion in favor of *deep ploughing* and *thorough pulverization* of the soil. The productiveness of new lands is proverbial; and this, deep ploughing will in a measure furnish, although to equal them in fertility, an additional quantity of manure may be requisite. Any farmer who believes in the necessity of spading deeply his garden, cannot doubt the utility of *deep ploughing*; and this will be still more evident if he will examine the roots of plants, and observe the depth to which they extend in such soils. We have known the roots of a strawberry plant to penetrate three feet, and the consequence was the greatest luxuriance and fruitfulness. The aphorism of the old Roman should be the maxim of all farmers, Plough! *Plough!!* PLOUGH!!! And most earnestly do we hope, since they have generally ceased (we speak it to their praise,) from *deep drinking*, they will turn to *deep ploughing*, and we will only add that we think *sub-soil ploughing* worthy of all the commendation it has received.

When we consider the thousands of acres which at present lie waste in this county and Commonwealth, and which, at a small expenditure, might be reclaimed and converted into fertile fields, we cannot but add also

our testimony in favor of *draining*, as among the most important and profitable improvements of our day.

“In grounds, by art laid dry, the aqueous bane,
That marred the wholesome herbs, is turned to use ;
And drains, while drawing noxious vapors off,
Serve also to diffuse a due supply.”

This is especially suitable in low, wet grounds, as meadows, bogs and swamps, which frequently consist of deep soil capable of equalling in fertility the richest alluvial land. We have in mind an example in this immediate vicinity, where a gentleman drained a meadow not previously worth twenty dollars per acre, and the grass it yielded not repaying the mower, and where the crop the very first year more than met the whole expense of the operation, and raised the value of the land to two hundred dollars per acre.

In England and Scotland draining and subsoiling have caused a complete revolution in farming, and converted into rich and valuable lands millions of acres which were but mere bogs and fens.

On these topics and others contained in the Society's Premium List, we cannot enlarge ; but we hope they will receive the attention which their importance demands.

We will only add, that *Fruits* and *Fruit Trees* are worthy of special attention, because they relate to products in which our farmers can most readily compete with larger cultivators in other parts of our land, and which will always be requisite for the supply of our home market.

Did time permit it would be interesting to survey the various branches of *domestic manufactures*, in some of which this county is without a rival, as in Straw Braid and Bonnets, the amount of which by the statistics of 1845, was six hundred and forty-five thousand dollars,

being more than all that was made in the rest of the Commonwealth, if not in the country. We regret that we cannot speak of the benefits to be derived from the soiling of cattle, and from the raising of root crops as food for them; of clearing, reclaiming and enclosing land, of securing the best breeds of stock, and of producing others better than any that now exist; and of other subjects which are worthy of the attention and encouragement of this Association.

Before we conclude, however, we must be allowed to speak of *that*, which is *vital* to the success of our whole enterprise, — AGRICULTURAL EDUCATION.

The low condition of this, compared with the enterprise and zeal for improvement in other departments of action, demands for it a hearing and place on all occasions like the present.

One of the greatest embarrassments of the farmer is the want of a proper education for his calling. In other arts and professions we employ only those who are properly trained for their business. The reason is evident. We do not expect others to succeed. But why do we not apply the same logic and practical sense to agriculture? We do not encourage an uneducated physician or a mechanic who is not master of his trade; why then do we expect men to succeed in farming who know no more of the nature of soils, nor of the adaptation of different species of manures to the various kinds of grain, grass, vegetables, and fruits, than they do of the rotation of day and night, or the seasons in one of the newly discovered planets?

I cheerfully admit that there are honorable exceptions in this county and in other parts of our land — farmers who have brought science to bear on their practice; who succeed, and even acquire wealth, while others destitute of such knowledge are oppressed with poverty

always in doubt and mystery, and blown about by every wind of doctrine.

Education makes the difference ; the former have some knowledge of the adaptation of manures and crops to their soils, and of the best systems of rotation, and of cultivation. But the latter work at the other end of the lever, and vainly endeavor to supply the lack of mental culture by physical power.

They plough and sow, but alas, for the reaping ! Where they might have gathered an abundant harvest they obtain scarce enough to pay their labor ; they supply the deficiency by mortgaging their farms which they imagine have run out ; they talk of a change of business, but suspect not the real cause of their embarrassment, and of course discover not the remedy till their farms are gone and with them the opportunity for amendment. The knowledge which they might have acquired in early life, or during those long winter evenings which are too often passed in idleness and foolish chit-chat, might have prevented their failure and conducted them to eminence and affluence.

Why have so many of our sons forsaken the farm, for the office, the counting-room, the warehouse, and the professions ? Why such a rush by sea and land from the homes of their childhood, for the glittering dust of California ? Why have they not retained

“ That fond attachment to the well known place,
Where first they started into life's long race,
Which keeps its hold with such unfailing sway,
We feel it e'en in age and at our latest day ? ”

Alas ! What has driven them from the homestead overshadowed by the elms which their fathers planted, and under which in their boyhood they wrought out so many youthful wonders ? Why eat they no longer the “ Old Nonesuch,” or quench their thirst from the “ old

oaken bucket?" Why? For that lack of interest and skill in farming, which would have rendered it as lucrative and honorable as other pursuits, and which education alone can supply. Such examples which have fallen under our own observation, create a demand which I only reiterate, when I say that our farmers must be educated.

"But our fathers were not educated, yet they were successful farmers." True, but they possessed advantages which we cannot enjoy; then the soil was new, and of course more productive; now when its fertility has been diminished by successive crops, it must be restored and increased by artificial processes, to the success of which knowledge is indispensable. Besides, the progress of the other arts enables men to realize better profits than they then received, and corresponding improvements not having been made in agriculture, labor has here been less liberally rewarded.

"But we have seen your book-farmers, your deep ploughing, your highly recommended sub-soil plough turning up the stones, clay and gravel; we have seen your recipes for manufacturing manure, and have tried your nostrums for the destruction of insects with fatal effect, for they destroyed not only the bugs but also our vines." What do such ridiculous incidents prove? Simply, that there are men of *little* sense, and men of *no* sense in this as well as in every other vocation; and they are painful illustrations of the necessity of a thorough education in agriculture; they teach us that a little learning is a dangerous thing, and exhort us to drink deep at the Pierian spring.

Others insist that *common sense* alone is needful. But common sense such as they recommend, is a very uncommon thing; yet if it were possessed by all, why not rely upon it to make skillful mechanics, artists and teachers, as well as farmers? When common sense

can manufacture a steam engine, construct a railroad, or teach mathematics, we may expect it, without the aid of science, to conduct successfully the operations of the farm.

Till then, let us not rely upon common sense for miracles, nor offer it as an apology for ignorance or idleness. Common sense is as valuable as it is rare, but let us remember that it never yet made a plough or planted an orchard, till it was properly instructed.

The standard of agricultural education, then, must be raised at least to a level with that of other professions. Individual health and happiness, the welfare of the Commonwealth and country require it. Who can estimate its importance to the nation? I repeat it, agriculture, commerce, manufactures, and the arts, are all co-ordinates, separate links in one vast chain.

Our country boasts of men who have distinguished themselves in arts, letters and morals; of men whose fame is our inheritance and glory. We are proud of the name of Rittenhouse in astronomy, of Franklin in philosophy, of West, Allston and others in the fine arts, and in politics of John Hancock, of Patrick Henry, of Samuel Adams, of John Adams, and of his illustrious son, John Quincy Adams, and not least of Fisher Ames, who gives to this town an enviable distinction, whose hand planted many of the beautiful elms that adorn this village, and whose bounty distributed trees among his fellow citizens, of the fruit of which its present inhabitants partake.

But where are the men whose names will go down to posterity honorably associated with these in the art or science of agriculture? True, we might speak of the farmer of Mount Vernon, who first called the attention of Congress to this subject — of WASHINGTON, whose name awakens the most grateful sensations in all our hearts; of the farmer of Monticello, whose genius first

gave proper curvature to the mould board of the plough, and whose taste for rural life sought gratification in the perusal of his favorite classics in the bowers of his garden, with the earliest songsters of the morning; of Charles Cotesworth Pinckney, and Madison, and of other worthies, distinguished in this art, whose names are embalmed in the memory of their grateful countrymen.

But passing in silent veneration many in other parts of our land, whose contributions to this cause have secured to them a durable fame, we have only space to refer to a few who have distinguished our Commonwealth and neighborhood: to Timothy Pickering, whose sage maxims more than thirty years ago on deep ploughing, pulverization of the soil, and kindred topics, evince great practical wisdom, and are unrivalled by any more recent discoveries; to John Lowell, who united with legal knowledge and general science, a remarkable taste for agriculture, and contributed perhaps more liberally by his pen and resources than any other citizen of his day to its advancement; to Thomas Greene Fessenden, whose indefatigable labors as editor of the *New England Farmer*, conferred numerous and important benefits upon the yeomanry of Massachusetts; to the late and lamented Elias Phinney, a man of large acquisition and ripe experience in the various departments of this science, and whose personal worth and private virtues endeared him to all our hearts; to our beloved Lyman, over whose fresh grave we drop a tear at the loss of a distinguished citizen, and benefactor of the widow and fatherless, and whose princely donations to the Massachusetts Horticultural Society, to the Farm School, and to the State Reform School of which he was the founder, will ever be held in grateful recollection; to another son of New England, of whom she had a right

to be proud, as one of the most active and prominent promoters of the great art we have united to honor—to Henry Colman, who has been so suddenly cut down in a foreign land, who for many years was our State Agricultural Commissioner, whose annual reports to our Legislature, whose works on European Agriculture, whose letters and “personal observations” are treasures of practical wisdom, and whose recent death near London is a great public calamity.

But with which of these illustrious men was it not secondary to other pursuits? What we now need is young men who will devote exclusively to agriculture, their talents, their fortunes, and their lives, and will rely on posterity to appreciate their improvements and discoveries, and to honor their memory.

Here the aspirant for fame has a fairer prospect of distinction, than he can find in any kindred art or science; first because less progress has been made, and secondly because the successful farmer of New England must be well educated for his profession, or he can never compete with the cultivator on the prairies and intervals of the West. There the soil is new and productive, and nature at present does for him, what education must accomplish for us, and it is capable of demonstration, that with the aid of science, the farmer of Massachusetts can compete successfully either with the southern planter or western cultivator.

The improvement of agriculture will also do much to preserve that conservative and controlling influence which New England has ever exerted in the councils of the nation. Let the immigrants who throng our shores, go and settle in the far West; but let the sons of New England, with their muscular frames, industrious habits, and generous hearts, divide among themselves the farms of their fathers; so that with less land

and higher cultivation they may be able to say with the poet, —

“ Rough is her soil ; yet blessed in fruitful stores ;
Strong are her sons, though rocky are her shores ;
And none, ah ! *none*, so lovely to my sight,
Of all the lands that heaven o’erspreads with light.”

In some other pursuits, we are in advance of European nations. Why are we behind any of them in this ? Our soil is more fertile, our natural resources greater, and our population more industrious and enterprising. They are our superiors because they are better informed in its scientific principles.

As yet, we have had but few, if any, rivals of Thäer and Liebig in Germany, of Boussingault in France, or of Davy, Playfair, Johnston, and others in England ; neither have we any agricultural colleges or schools, like that at Cirencester in England, or Hofwyl in Switzerland ; and every day increases the demand for them.

True, we have some chemists and geologists, agricultural newspapers and periodicals, horticultural magazines, and writers on farming, landscape gardening, and pomology, whose works will outlive their age, and secure for them the gratitude of their contemporaries and of posterity ; but, with these honorable exceptions, men and institutions devoted exclusively to agriculture are, in our country, yet to be created.

Nearly one thousand are added to the population of New England every week. And how are they to be fed ? By the surplus productions of the West ? But how are the latter to be purchased ? By the proceeds of the arts and manufactures ? Highly as we prize these handmaids of this art ; much as they have benefited the farmer in increasing the value of his land, and creating a ready home market for his productions ; much as we think it the duty of our country to pro-

tect its own industry, and much as we believe that this has added to the independence, wealth, and importance of Massachusetts (for we have no sympathy with those who present one great industrial pursuit as the antagonist of another); yet shall the descendants of the Puritans, of Brewster, of Endicott, and Winthrop, spurn the chief inheritance of their fathers, and leave the natural resources of wealth and power for the uncertain results of trade and manufactures? No! A note of remonstrance breaks on my ear! It comes from a thousand cottages and happy firesides! It rings through our valleys and echoes among our hills. *No!!* Our descendants shall range the hills which their fathers cultivated; they shall eat the fruits of their gardens and orchards, and shall fling on the passing zephyrs a melody in praise of agriculture sweeter than any songs which Grecian or Roman bards ever sung in honor of Ceres.

As the festivals of that goddess were celebrated with great pomp, after she had recalled the attention of men to her favorite pursuit, and had taught them "how to plough the ground, to sow and reap the corn, to make bread, and to take particular care of fruit trees"; so, when agriculture shall receive the attention of our citizens, reformation and education will make our children what our fathers were, not merely the nerve, muscle, and bone, but the very *soul* of society. Hence, if we would realize our hopes in the generation now coming on the stage, we must educate our young farmers.

There is, even in New England, much land to be possessed, but it consists not so much of forests to be converted into cultivated fields, as of deteriorated lands, bogs, and meadows to be reclaimed, and of barren hills and plains to be fertilized, and covered with waving grass and grain. For such purposes, science alone is adequate and indispensable.

What wonders has she wrought in other departments within the last half century ! With a power and skill almost divine, man has seized on the very elements of nature, and made them subservient to his will. In obedience to established physical laws, he generates an agent which works for him in air, earth, or water ; and from the tips of his fingers, with as much ease as one plays on an instrument, he sends forth the “winged lightning” to do his bidding.

But why should not these agents work for the farmer as well as for the mechanic, the manufacturer, or the navigator ? Why should not steam aid in the production of manure, as well as in the manufacturing of acids and alkalies ? Doubtless it would ere this if thought, enterprise, and capital had sought its application here, with equal zeal and perseverance, as in other departments of labor ; and perhaps we should to-day have been driving our ploughs as well as our cars, filling our barns as well as our warerooms and storehouses, and expediting the various processes of agriculture, as well as those of the other arts, by its magic power.

We may be deemed chimerical, but we have long ago ceased to wonder or be surprised at any discovery or invention. The improvement of to-day supersedes that of yesterday. No project, of whatever magnitude, whether the building of a railroad from the Atlantic to the Pacific ; the tunnelling of the Rocky Mountains ; the traversing of old ocean's bed with the mystic wires, or winding them round the globe, is too great for the enterprise of the nineteenth century.

Strange indeed that agriculture, which occupies directly or indirectly, more than three-fifths of the population of the United States, an art in which capital is so safe, and labor so productive, the parent of all other arts, and the source whence we derive our daily bread, has received no more encouragement from sci-

ence, from invention and discovery, from men of letters and of benevolence.

If funds are wanted for internal improvements, for public or private charity, for the endowment of institutions of learning or religion, the call is at once responded to by the liberal citizens of Massachusetts, in a manner worthy of themselves, of their origin and destiny.

But present to them the claims of agriculture, they admit its utility and profess an earnest desire for its welfare ; yea, they expatiate most eloquently on its importance and moral influence, and assign it a place second to no other calling ; yet when you invite them to contribute the " needful " for its improvement, they find excuses more plenty than gold dust on the banks of the Sacramento.

Why, amid the endless variety of literary and scientific publications, have we so few on this important art ? Among the millions annually appropriated by Congress for the protection of our territory, or for the questionable acquisition of more, why does she make no better provision for the cultivation of what we already possess ?

Why has it hitherto been in our own State so difficult, nay *impossible*, to get a bill through our Legislature granting ten thousand, or even five thousand dollars in aid of an agricultural school, when much larger appropriations are annually made for the support of objects not half, no, not a tenth part so important to the Commonwealth ?

But we rejoice that the day is at hand, when such disregard of her true interest, and of the primary pursuit of man, will no longer exist in Massachusetts, of world-wide renown for the wisdom of her policy in the encouragement of domestic industry.

Her sense of justice and of personal honor forbids it, and loudly demands the improvement for which we

plead. What! shall the Old Bay State, first in the march for liberty, first in legislation, first in internal improvements, first in whatsoever is lovely and of good report, be overmatched and her glory eclipsed by any other State in the Union? New York, our rival in all but politics, schools, and manufactures, is already in the field, and vigorously at work. Her Governor, in his address for January, 1849, says:—"I cannot too strongly recommend the endowment by the State of an agricultural school, and an institution for instruction in the mechanic arts." The Assembly then in session responded to His Excellency's call, and a board of able commissioners was appointed to report a plan for the establishment of an Agricultural College and an Experimental Farm. A similar recommendation also distinguished the recent message of the Governor of Maine.

In this struggle for improvement, Massachusetts will not be behind her sister States. She is already waking up and moving, and when she puts her hand to the plough, there will be no looking back.

The attention of her sons is already turned to her neglected soil, and they are beginning to renovate their orchards and forests, to drain their meadows, to cultivate their farms, and to repair their barns and granaries, in expectation of years of plenty. We would aid and encourage them in this work, by legislation, by education, and by every means in our power.

Why should we not have an agricultural department in our national and state governments, as well as one for the military? Surely the earth has been sufficiently fertilized by blood to yield extra support for those whom the sword has spared! Why are not agricultural schools as intimately connected with the welfare of the Commonwealth as Normal schools? The latter we cheerfully sustain for the education of a few

hundred teachers. But who are to educate the thousands of young farmers who in their turn are to teach agriculture to the next generation?

We have well-endowed colleges and academies, institutions for the promotion of the arts, and for the amelioration of the various ills that flesh is heir to; yea, the means of education in other branches are so accessible that no young man of talents and thirst for knowledge need remain in ignorance.

But, unaccountable as it may seem, there is no institution in this Commonwealth, or in the country, where a young man can acquire the important art of becoming a truly intelligent and skilful farmer.

In France, and some other countries, agricultural institutions can be found, supported by government, and provided with extensive libraries and with competent professors, who, in addition to the instruction which they give in their professional chairs, go into the surrounding country, call together the farmers, and instruct them in their various pursuits.

The President of the French Republic, in a recent communication, commends such institutions to the particular care and patronage of the government, and announces that a special commissioner has been appointed on the subject of agriculture. There are in that country one hundred and twenty-two agricultural schools, and three hundred minor institutions, for the promotion of this art, sharing the patronage of the government.

We must have agricultural colleges and schools, or we must have departments in our institutions of learning, devoted to this art and science. We need an agricultural department in each of our secular and religious newspapers, filled with articles calling the attention of the public to the subject, and arousing our agriculturists to a true sense of their own interest and welfare. Con-

ventions should be called, not only in counties, but also in the respective towns, for such familiar discussions as have already been held in the farmers' clubs of Needham and Dover. And I would here suggest whether this association can accomplish its object in any way more readily than by making provision for a series of such meetings in the various towns of this county during the present autumn and the following winter.

Let our agricultural papers and periodicals continue their noble advocacy of this cause ; let the pen of the learned write for these and our journals ; let the voice of the eloquent advocate this cause in the halls of legislation, and throughout the length and breadth of our land ; let efficient hands and warm hearts engage in it, and then the public mind cannot slumber ; agricultural education will advance ; our seminaries of learning, from the common school to the university, will provide a place for it in their processes of instruction, and we shall have among our yeomanry such farmers as the world never before witnessed ; men, who will honor their vocation, and therefore be honored by society ; the chiefs of our land, the glory of our nation.

In conclusion, allow me, gentlemen, to congratulate you on the auspicious commencement of this Association. We now number about five hundred members, persons of all political parties, of all religious denominations, and of every rank and profession.

Its first exhibition certainly awakens the most pleasing anticipations, and encourages the hope that, at its next anniversary, it will have an enlarged representation of members and products from every town in the county.

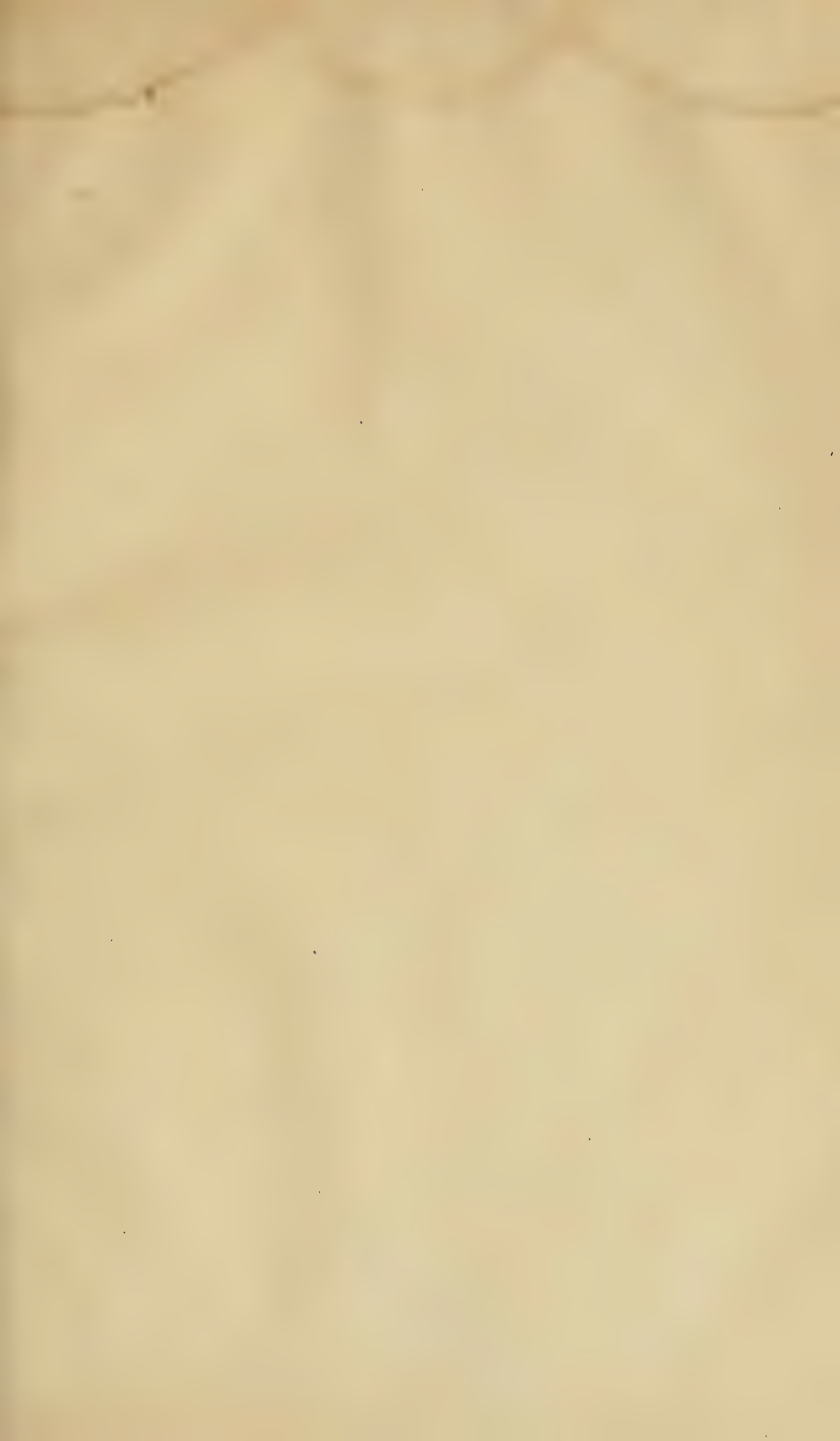
We rejoice to meet here to-day His Excellency the Governor of this Commonwealth, and the many distinguished guests who have honored us with their

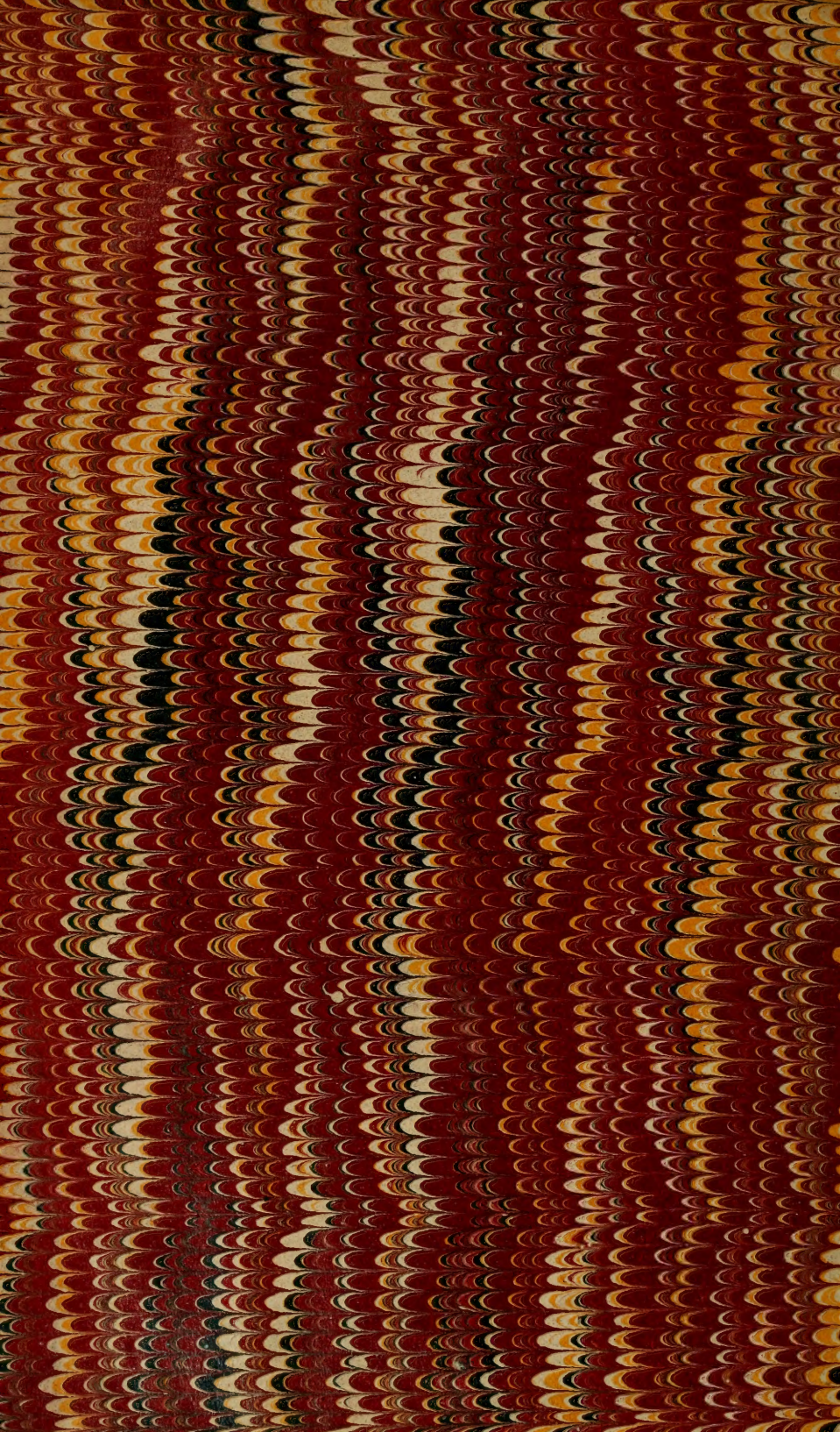
presence. We rejoice to meet so many whose hearts are moved by this soul-stirring subject, and who by their presence, by the articles which they exhibit, and the various parts they have to perform, contribute so much to the interest, utility, and joy of the occasion.

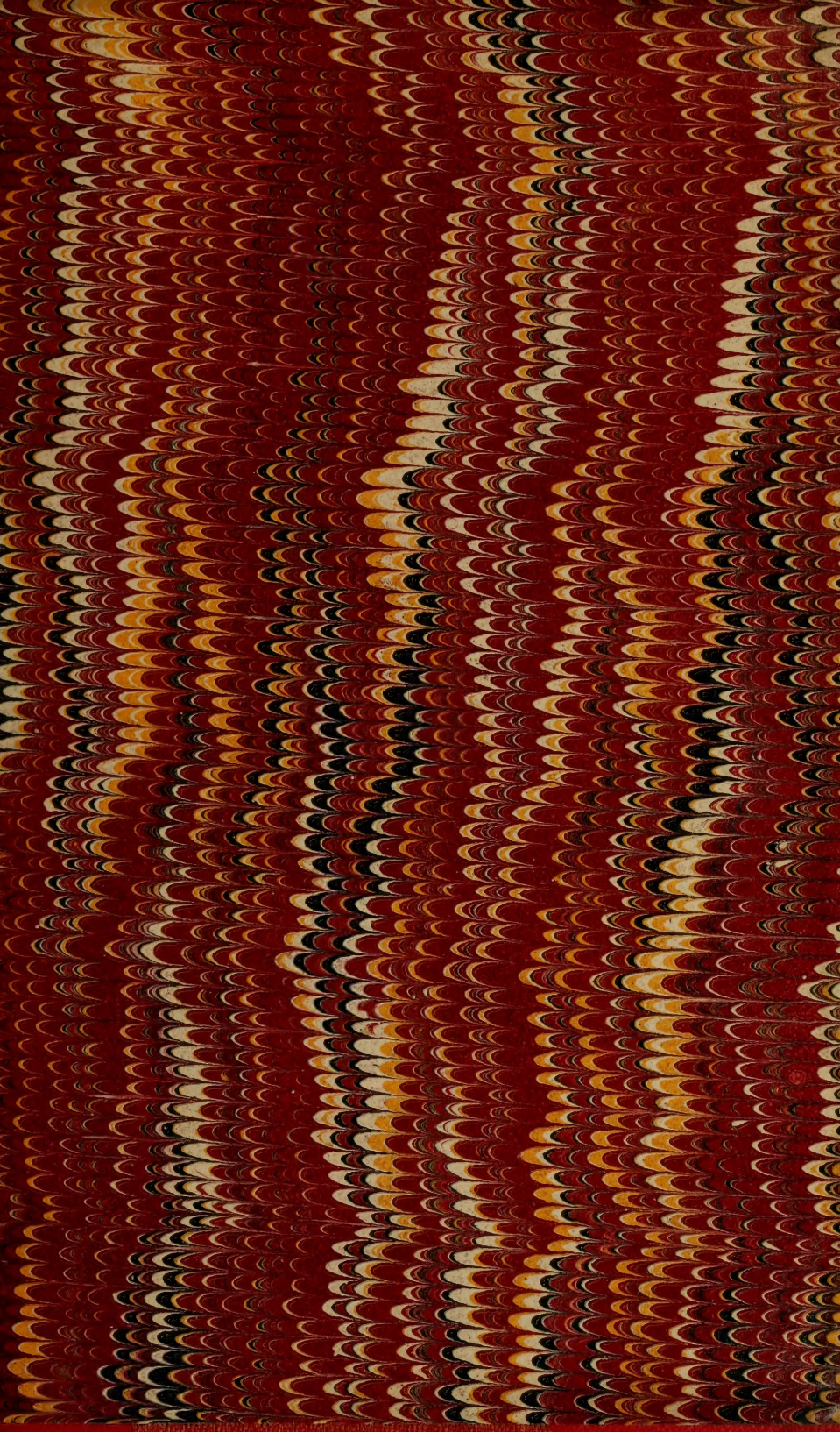
Our thanks are also due to those gentlemen whose efficient labors have contributed to this result ; to those also who have distinguished themselves by the lively interest they have manifested in the operations of the society ; and especially to the ladies, ever foremost in good works, whose presence, skill, industry, and taste, add so largely to the attractiveness and completeness of our exhibition.

Encouraged by so worthy an example, we trust that all will be induced, at the return of our Olympia, to become competitors for prizes ; for if unsuccessful, they will enjoy the satisfaction of increasing an honorable competition in what is most laudable and useful. Let it never be forgotten that we here meet as friends and mutual helpers, dispensing and receiving good, without regard to party or sect. Anticipation dwells with delight on the realization of our hopes ; upon the bright prospects before us ; upon our county converted into another Eden ; grass and grain, fruit and flower, plenty and peace, purity and bliss, everywhere abounding.

May the latter end of this Society be as glorious as its commencement has been auspicious ; and may our neighbors be able to say of us, as one said of our namesake in the mother country, at the formation of the English Agricultural Society, LOOK AT NORFOLK !







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